

MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

VOL. XXV.

APRIL, 1897.

No. 4

INTRODUCTION.

The MONTHLY WEATHER REVIEW for April, 1897, is based on 2,927 reports from stations occupied by regular and voluntary observers, classified as follows: 143 from Weather Bureau stations; numerous special river stations; 33 from post surgeons, received through the Surgeon General, U. S. Army; 2,588 from voluntary observers; 96 received through the Southern Pacific Railway Company; 14 from Life-Saving stations, received through the Superintendent United States Life-Saving Service; 32 from Canadian stations; 1 from Hawaii; 20 from Mexican stations. International simultaneous observations are received from a few stations and used together

with trustworthy newspaper extracts and special reports.

The REVIEW is prepared under the general editorial supervision of Prof. Cleveland Abbe. Unless otherwise specifically noted, the text is written by the Editor, but the meteorological tables contained in the last section are furnished by Mr. A. J. Henry, Chief of the Division of Records and Meteorological Data. Special acknowledgment is made of the hearty co-operation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada, Mr. Curtis J. Lyons, Meteorologist to the Government Survey, Honolulu, and Dr. Mariano Bárcena, Director of the Central Meteorological Observatory of Mexico.

CLIMATOLOGY OF THE MONTH.

GENERAL CHARACTERISTICS.

The month was remarkable for the continued excess of rainfall in the Valley of the Mississippi and its tributaries, and for the consequent steady increase of dangerous floods in these rivers, a full account of which is given in the chapter on Rivers and Floods. A remarkable rise in barometric pressure occurred in Washington and Oregon, characteristic of the establishment of the summer season but at a much earlier date than usual. The temperature was above normal over the Lake Region and New England, and over Alberta, Saskatchewan, and Manitoba in Canada; the accumulated departures from normal temperature show that the Mississippi Valley and Lake Region already have a surplus of heat that will produce a continued warm soil and rapid vegetation during the summer unless abnormal conditions intervene.

ATMOSPHERIC PRESSURE.

[In inches and hundredths.]

The distribution of mean atmospheric pressure reduced to sea level, as shown by mercurial barometers, not reduced to standard gravity, and as determined from observations taken daily at 8 a. m. and 8 p. m. (seventy-fifth meridian time), is shown by isobars on Chart IV. That portion of the reduction to standard gravity that depends on latitude is shown by the numbers printed on the right-hand border.

The mean pressure during the current month was highest on the coast of Washington and Oregon, and almost as high on the coasts of North and South Carolina. It was lowest in Arizona and almost as low in Saskatchewan. The highest reduced pressures were: In the United States, Tatoosh Island, 30.18; Eureka, 30.17; Seattle, Hatteras, Charleston, 30.16; Lynchburg, Raleigh, Wilmington, and Fort Canby, 30.15. In Canada, White River, 30.10; Calgary, 30.05; Port Arthur, 30.04; Bermuda, 30.16. The lowest were: In the United States, Phoenix, 29.87; Yuma, 29.88; El Paso, 29.94; Havre,

29.97. In Canada, Prince Albert, 29.89; St. Johns, 29.94; Battleford and Medicine Hat, 29.98.

As compared with the normal for April, the mean pressure was generally in excess throughout the United States and Canada. The greatest excesses were: In the United States, Tatoosh Island, Erie, and Hatteras, 0.16; Block Island, Atlantic City, Lynchburg, and Norfolk, 0.15; Kittyhawk, Raleigh, and Wilmington, 0.14. In Canada, Halifax, 0.16; Sydney, 0.14; Calgary, 0.13. The deficits were: In the United States, Yuma, 0.03. In Canada, Swift Current, 0.01; Winnipeg, 0.03.

As compared with the preceding month of March, the pressures reduced to sea level show a rise throughout the United States, except in Florida and Arizona, but a fall over the northern Slope and Canadian Northwest Provinces. The greatest rises were: In the United States, Tatoosh Island, 0.31; Fort Canby, 0.27; Seattle, 0.26; Portland, Oreg., 0.20. In Canada, Esquimaux, 0.29; St. Johns, 0.17. The greatest falls were: In the United States, Winnemucca, 0.11; Havre, 0.10; Miles City, 0.09; Moorhead, 0.08; Bismarck, Yuma, and Phoenix, 0.07. In Canada, Prince Albert, 0.20; Battleford, 0.14; Swift Current, 0.13.

AREAS OF HIGH AND LOW PRESSURE.

By Prof. H. A. HAZEN.

During the month of April eleven high areas and seven low areas were sufficiently well defined to be charted and their paths, together with the pressure near the center at 8 a. m. and 8 p. m., will be found in Charts I and II. The accompanying table gives the principal facts regarding the place of origin and disappearance of each high and low, and also the duration and length of each path with the velocity. A rather permanent area of high pressure in the Pacific Ocean caused six of the highs of the month. Two began in the region to the north of Montana, one in North Dakota,